



Federated Giovanni: A Distributed Web Service for Analysis and Visualization of Remote Sensing Data

*Chris Lynnes
NASA/GSFC*

Goddard Earth Sciences Data and Information Services Center

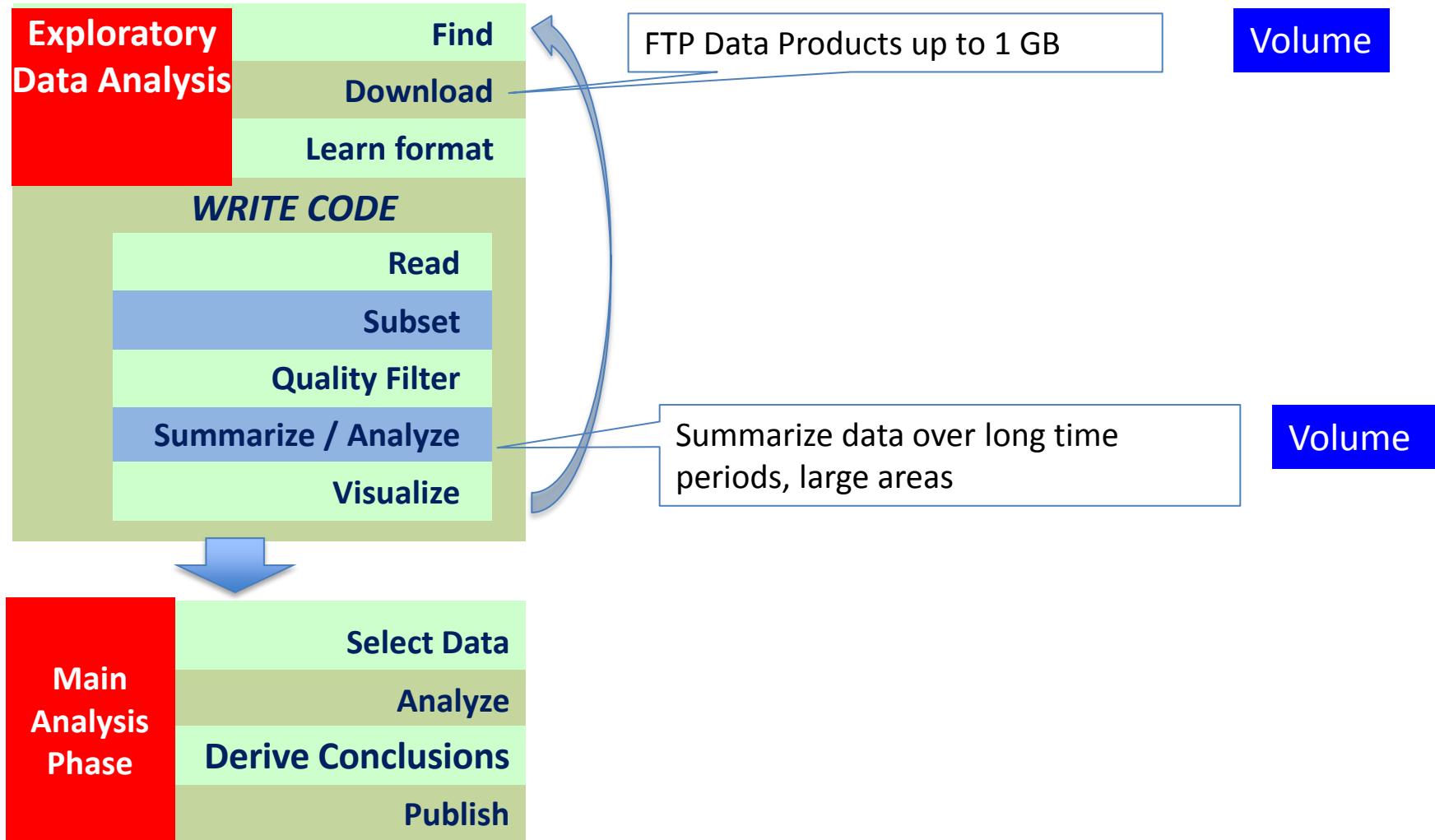


Outline

- Overview of Giovanni
- Federated Giovanni
- Current Status and Future Plans

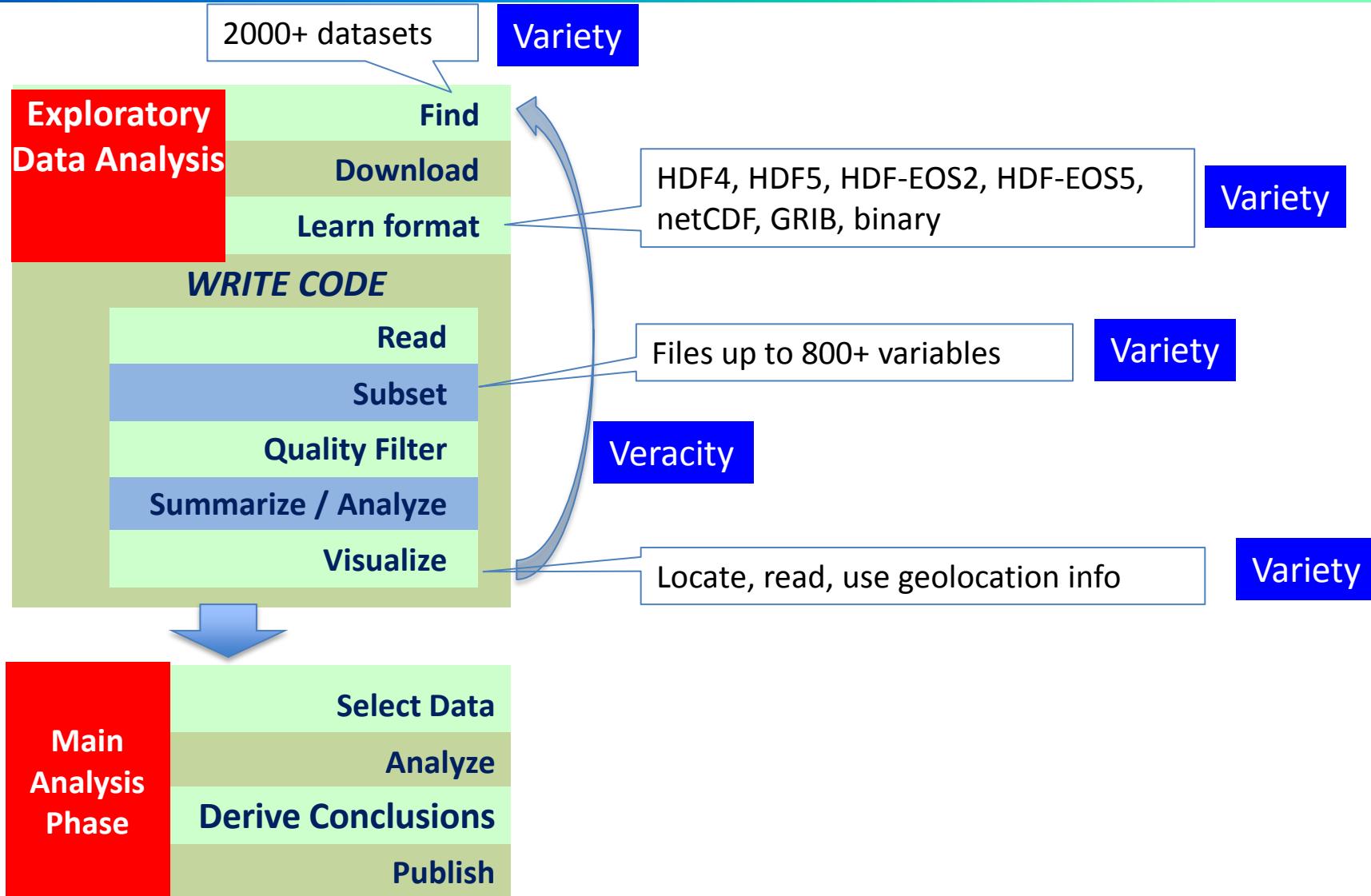


Big Earth Science Data: Why So Difficult?



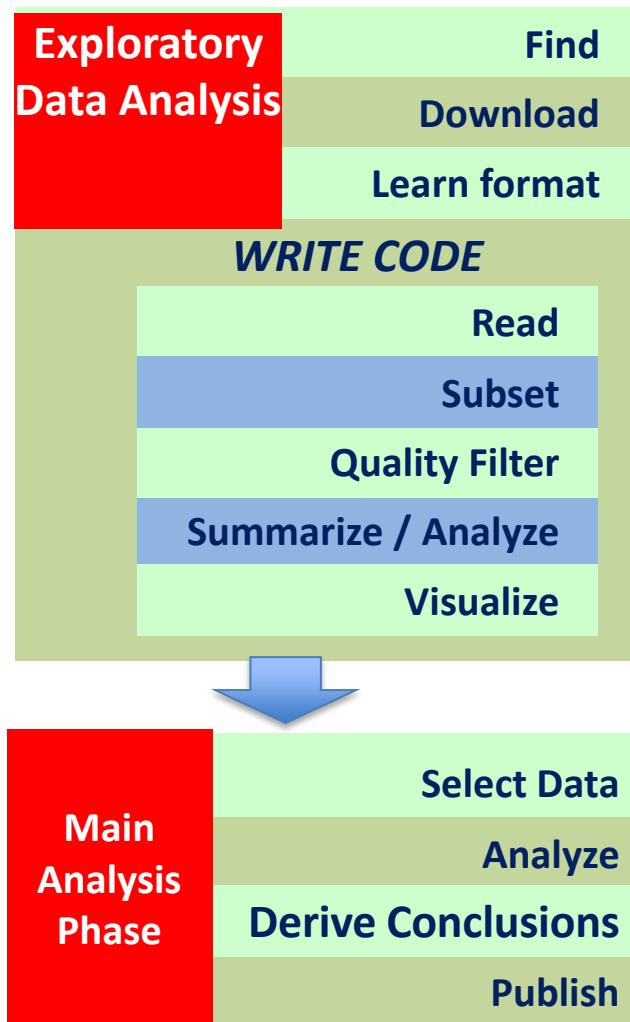


Big Earth Science Data: Why So Difficult?

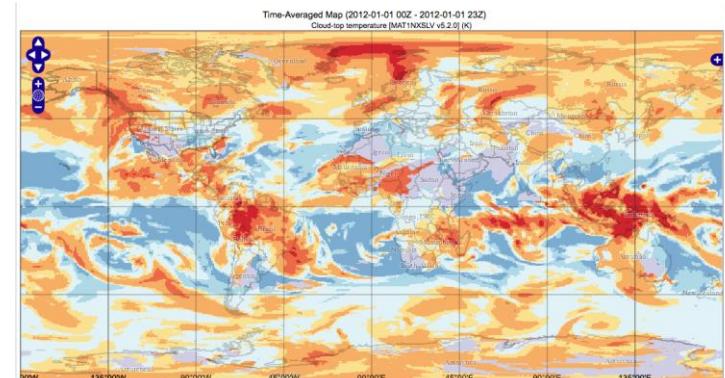
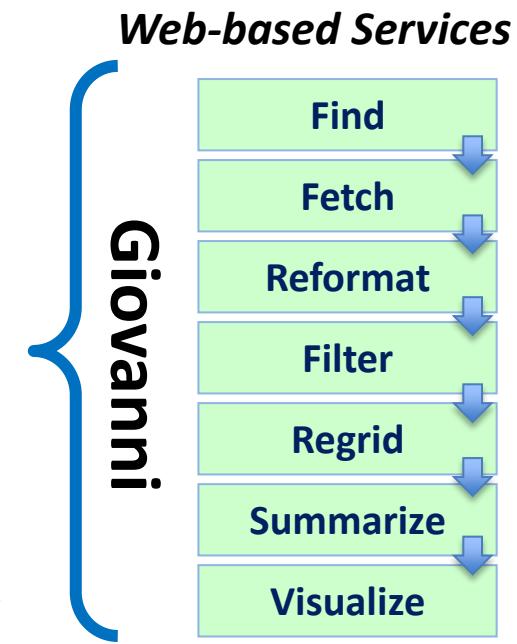




Giovanni provides (relatively) rapid exploration of datasets



Giovanni provides
Server-Side, Quick-Start Exploratory Data Analysis:
no coding necessary
no downloads necessary





Giovanni User Interface

Giovanni

The Bridge Between Data and Science v 4.11 [Release Notes](#) [Browser Compatibility](#) [Known Issues](#)

Error in the content of AOD dust 550 nm GOCART model data prior to June 7, 2013... [1 of 1 messages] [Read More](#)

Select Plot

Maps: Time-Averaged Comparisons: Select... Time Series: Select... Vertical: Select... Miscellaneous: Select...

Select Date Range (UTC)

YYYY-MM-DD
2014 - 09 - 01 00 hrs to 2014 - 11 - 30 23 hrs

Valid Range: 2002-07-04 to 2014-12-02

Select Region (Bounding Box or Shapefile)

Format: West, South, East, North
-44.2969, -5.625, 20.3906, 30.2344 Show Map Show Shapes

Select Variables

Disciplines
 Aerosols (52)
 Measurements
 Aerosol Index (1)
 Air Pressure (4)
 Air Temperature (14)
 Albedo (5)
 Altitude (4)
 Angstrom Exponent (16)
 Atmospheric Moisture (20)
 CH4 (4)
 CO (4)
 Cloud Fraction (4)
 Cloud Properties (9)
 Component Aerosol Optical Depth (16)
 Evapotranspiration (1)
 Geopotential (4)
 Latent Heat Flux (1)
 OLR (8)
 Ozone (4)
 Precipitation (6)
 Sensible Heat Flux (1)
 Soil Moisture (6)
 Statistics (28)
 Surface Runoff (1)
 Surface Temperature (4)
 Total AOD Climatology Anomaly (6)
 Total Aerosol Optical Depth (52)
 Wind Stress Direction (1)
 Wind Stress Magnitude (1)
 Platform / Instrument
 Wavelengths
 Spatial Resolutions

Number of matching Variables: 52 of 225

Total Variable(s) included in Plot: 2

| Keyword : | Variable Name | Source | Temp. Res. | Spat. Res. | Begin Date | End Date | Vert. Slice |
|-------------------------------------|---|-------------|------------|------------|------------|------------|-------------|
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Dark Target) (MOD08_D3 v051) | MODIS-Terra | Daily | 1 ° | 2000-03-01 | 2014-12-07 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Deep Blue, Land-only) (MOD08_D3 v051) | MODIS-Terra | Daily | 1 ° | 2000-03-01 | 2007-12-31 | - |
| <input checked="" type="checkbox"/> | Aerosol Optical Depth 550 nm (Dark Target) (MYD08_D3 v051) | MODIS-Aqua | Daily | 1 ° | 2002-07-04 | 2014-12-02 | - |
| <input checked="" type="checkbox"/> | Aerosol Optical Depth 550 nm (Deep Blue, Land-only) (MYD08_D3 v051) | MODIS-Aqua | Daily | 1 ° | 2002-07-04 | 2014-12-02 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 388 nm (OMAERUVd v003) | OMI | Daily | 1 ° | 2004-10-01 | 2014-12-06 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 500 nm (OMAERUVd v003) | OMI | Daily | 1 ° | 2004-10-01 | 2014-12-06 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 555 nm (MIL3DAE v4) | MISR | Daily | 0.5 ° | 2000-02-25 | 2014-08-31 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Dark Target) (MOD08_M3 v051) | MODIS-Terra | Monthly | 1 ° | 2000-03-01 | 2014-11-30 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Deep Blue, Land-only) (MOD08_M3 v051) | MODIS-Terra | Monthly | 1 ° | 2000-03-01 | 2007-12-31 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Deep Blue, Land-only) (MYD08_M3 v051) | MODIS-Aqua | Monthly | 1 ° | 2002-07-04 | 2014-11-30 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Dark Target) (MYD08_M3 v051) | MODIS-Aqua | Monthly | 1 ° | 2002-07-04 | 2014-11-30 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (SWDB_L305 v004) | SeaWiFS | Daily | 0.5 ° | 1997-09-03 | 2010-12-11 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Land-only) (SWDB_L305 v004) | SeaWiFS | Daily | 0.5 ° | 1997-09-03 | 2010-12-11 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Ocean-only) (SWDB_L305 v004) | SeaWiFS | Daily | 0.5 ° | 1997-09-03 | 2010-12-11 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (SWDB_L310 v004) | SeaWiFS | Daily | 1 ° | 1997-09-03 | 2010-12-11 | - |
| <input type="checkbox"/> | Aerosol Optical Depth 550 nm (Land-only) (SWDB_L310 v004) | SeaWiFS | Daily | 1 ° | 1997-09-03 | 2010-12-11 | - |

Help

Reset

Feedback

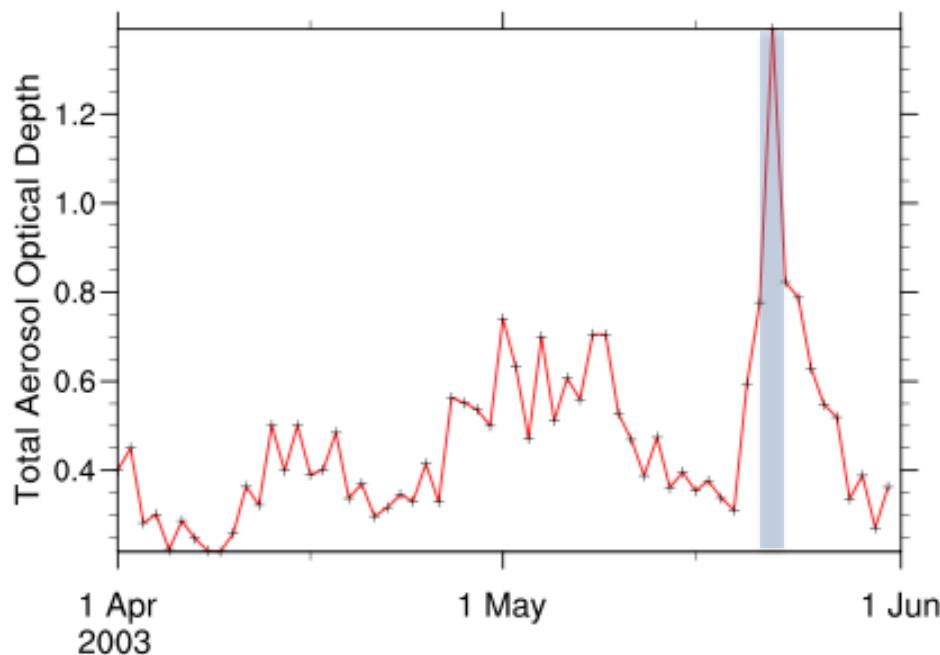
Plot Data

Go to Results

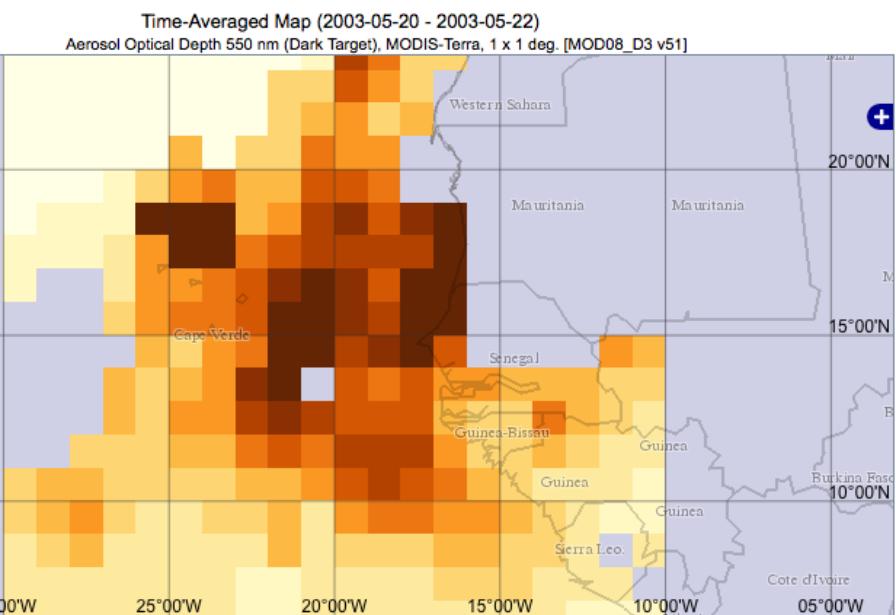


Example: Exploring in Time and Space

MOD08_D3 v51 Area-Averaged Time Series
2003-04-01 - 2003-05-31, Region 30W, 5N, 10W, 25N



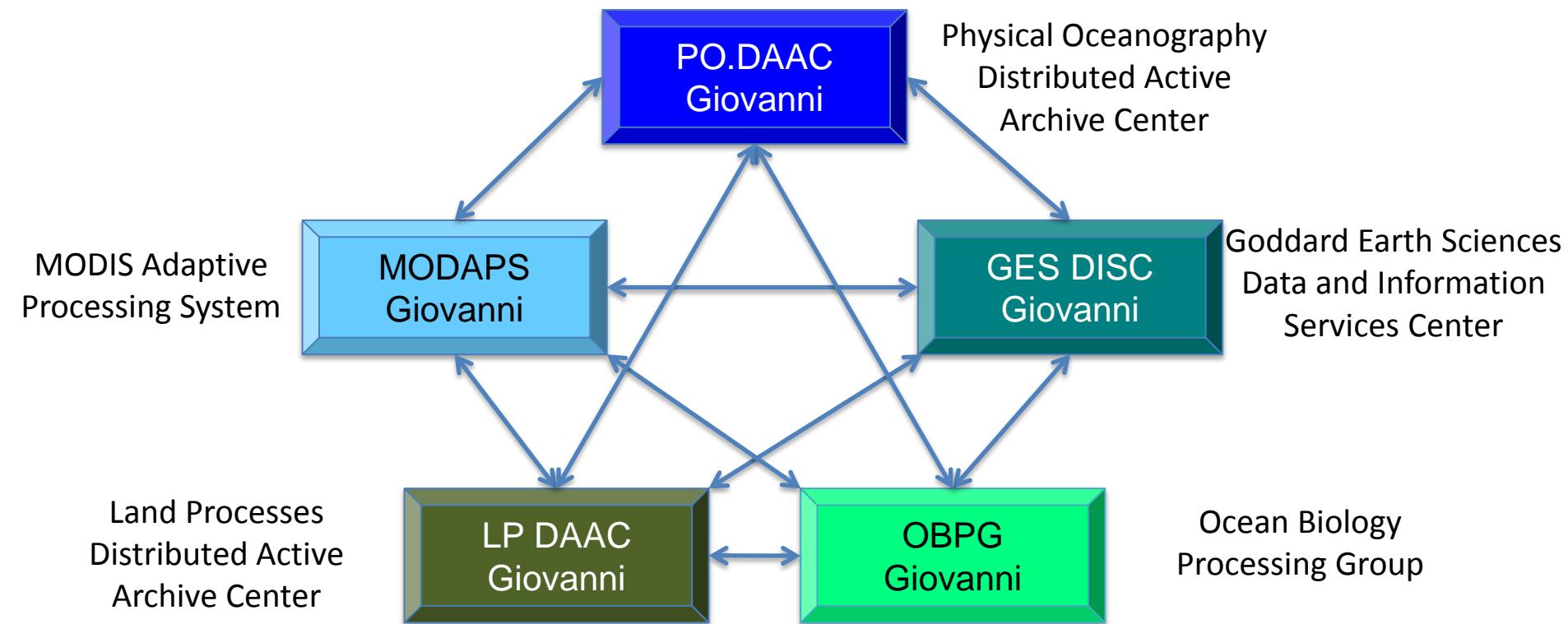
Time Averaged Map 20-22 May





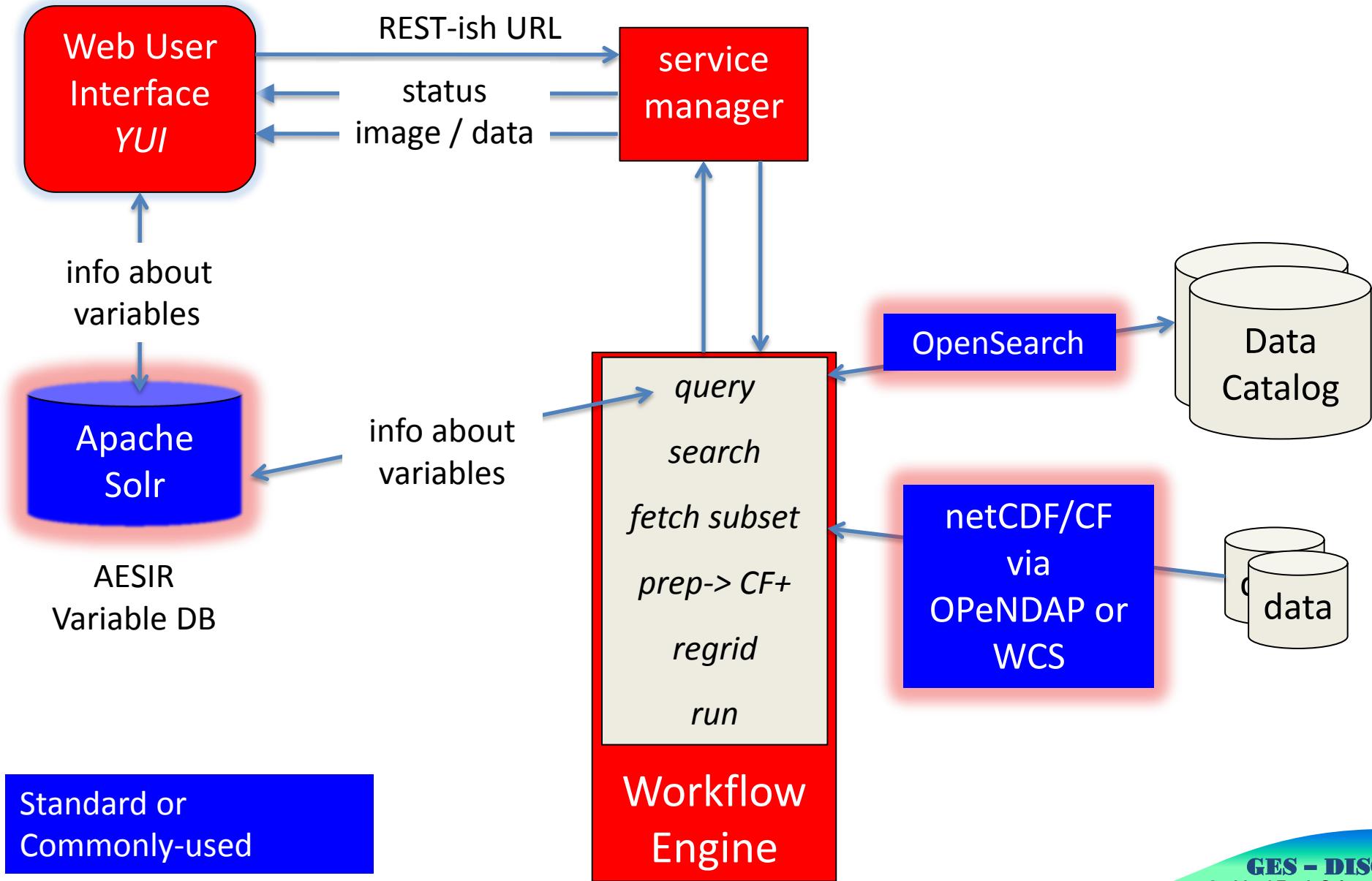
Federated Giovanni will increase the availability of data in Giovanni

Ongoing now: Funded by NASA-ACCESS: 2014-2016





Giovanni-4 Architecture





3 Tiers of Federation

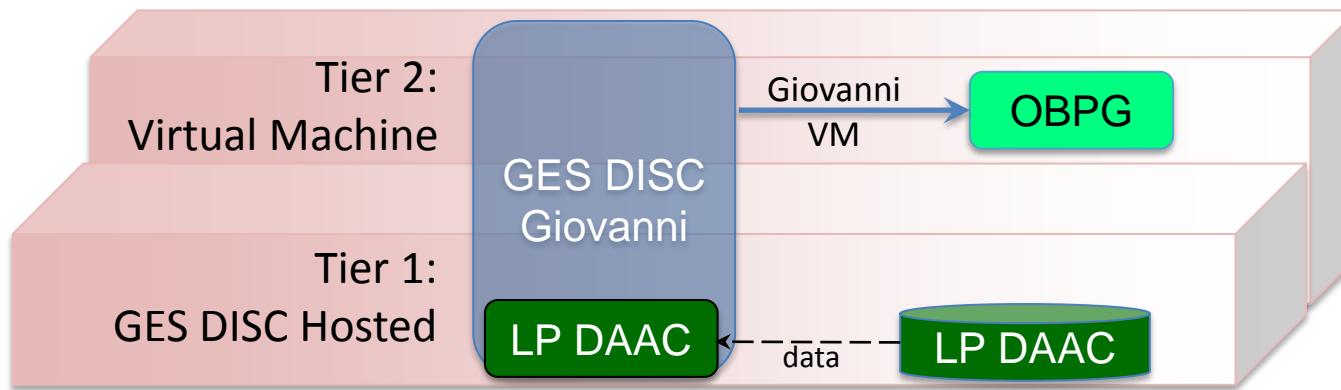
Giovanni will be sharable as a “Hosted Service” (Tier 1)





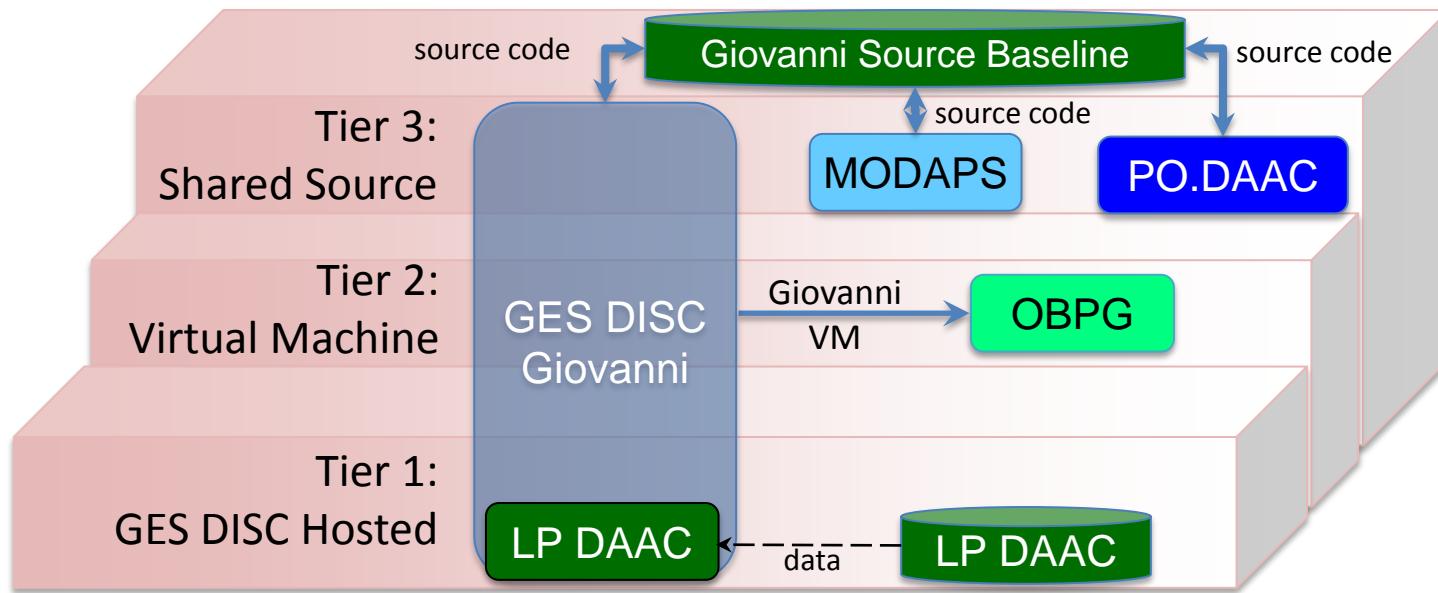
3 Tiers of Federation

Giovanni will be sharable as a Virtual Machine





3 Tiers of Federation





Status and Future Plans

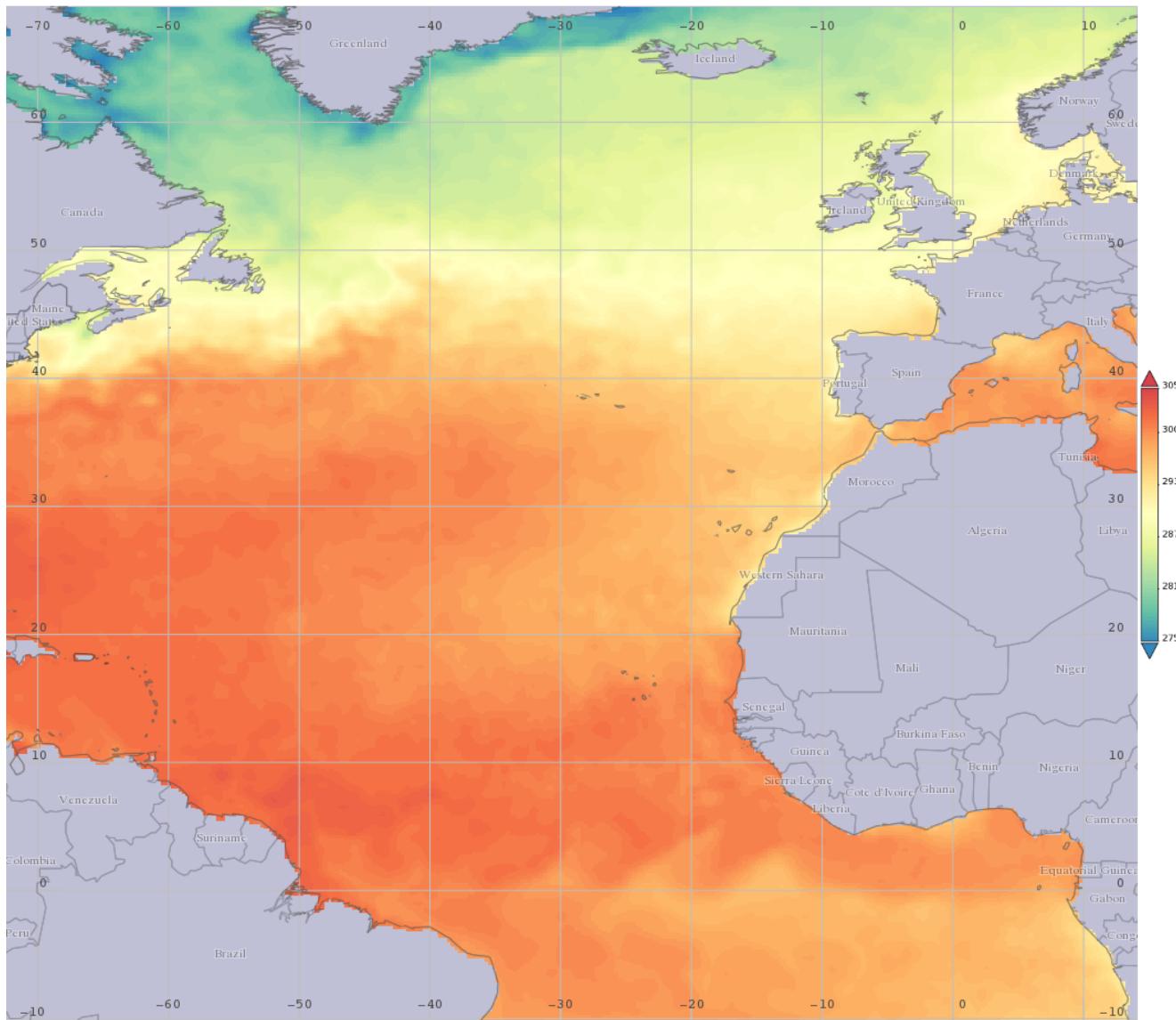
- Tier 1 (GES DISC Hosted) Prototyped



Sea Surface Temperature from Physical Oceanography DAAC

Time-Averaged Map (2008-08-11 - 2008-08-12)

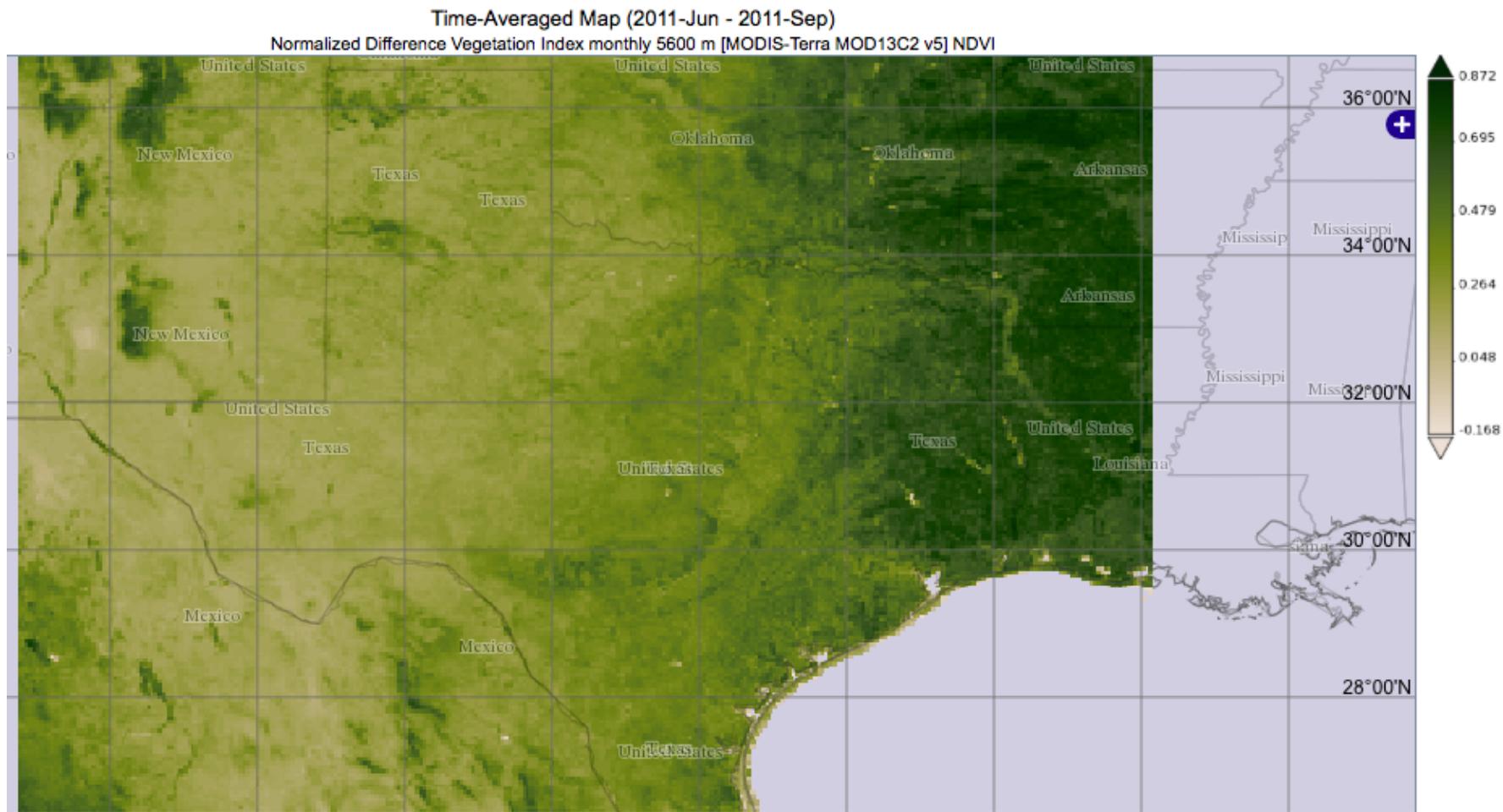
Sea Surface Temperature, analysed daily 0.2 deg. [NCDC Model NCDC-L4LRblend-GLOB-AVHRR_OI v1.0] kelvin



- Selected date range was 2008-08-12 - 2008-08-12. Title reflects the date range of the granules that went into making this result.



MODIS NDVI from Land Processes DAAC





Status and Future Plans

- Tier 1 (GES DISC Hosted) Prototyped
- Tier 2 Virtual Machine underway
 - Prototype expected in February 2015
- Open Source Release in 2015*